School as an epistemic apprenticeship: the case of building learning power¹ / La escuela como aprendizaje epistémico: el caso de Construyendo el Poder para el Aprendizaje

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(Received 1 August 2013; accepted 14 October 2013)

Abstract: For schools to make the jump from the 19th to the 21st century, they need to re-focus their attention. Instead of worrying about the content of the syllabus, the form of assessment, or how to re-engage the disengaged, they need to ask: what kind of mind training — or, more formally, ‘epistemic apprenticeship’ — is going on, day in, day out, in classrooms? I show that any topic can be used to cultivate passivity, dependence and credulity, or to build resilience, creativity and self-evaluation. It depends on the physical, practical and pedagogical cultures that teachers create in their classrooms. Globally there have been many recent attempts to do this re-focusing, with very mixed, not to say disappointing, results; this has often been because there has been insufficient clarity and precision about how teachers are being asked to change their practice. The Building Learning Power (BLP) approach, deriving from a growing network of academics, teachers and a small publisher, has spent the last 15 years researching what these practical shifts in pedagogy actually look like. Small changes are required in the way teachers conceptualize ‘powerful learning’, in the design of activities, in classroom discourse, in the attitudes towards learning which teachers model, in involving students in the design and evaluation of their own education, and in the forms of assessment used. A recent evaluation shows the BLP approach to be effective in boosting student engagement and achievement, whilst at the same time strengthening the habits of mind that young people will need to thrive in the tricky, turbulent waters of the 21st century.

Keywords: learning dispositions; epistemic apprenticeship; learning to learn; school culture

Resumen: Las escuelas deben redirigir su atención para dar el salto del siglo XIX al XXI. En lugar de preocuparse por el contenido del plan de estudios, la forma de evaluación o cómo volver a implicar a los estudiantes desimplicados, deben preguntarse: ¿Qué tipo de formación de la mente (o, más formalmente, ‘aprendizaje epistémico’) tiene lugar, día tras día, en las aulas? Como
trataré de mostrar, cualquier tema puede usarse para cultivar la pasividad, la dependencia y la credulidad, o por el contrario para desarrollar la resiliencia, la creatividad y la auto-evaluación: depende de las culturas físicas, prácticas y pedagógicas que los profesores creen en sus aulas. En los últimos tiempos ha habido muchas iniciativas en todo el mundo para poner en marcha ese cambio atencional, con muy variados, por no decir decepcionantes, resultados; la falta de claridad y precisión con que se pide a los profesores que modifiquen sus prácticas es a menudo la causa de tan dispares resultados. El enfoque de Building Learning Power (BLP, Construyendo el Poder para el Aprendizaje) parte del trabajo de una creciente red de académicos, profesores y una pequeña editorial, una red que ha dedicado los últimos 15 años a investigar qué forma deben tomar realmente esos cambios de prácticas en la pedagogía. Se requieren pequeños cambios en la forma en que los profesores conceptualizan el 'aprendizaje poderoso', en el diseño de actividades, en el discurso en el aula, en las actitudes hacia el aprendizaje que modelan los profesores, en implicar a los estudiantes en el diseño y evaluación de su propia educación, y en las modalidades de evaluación utilizadas. Una evaluación reciente muestra que el enfoque BLP es efectivo en la mejora de la participación y el logro de los estudiantes, a la par que en el refuerzo de los hábitos mentales que necesitarán los jóvenes para prosperar en las complicadas, turbulentas aguas del siglo XXI.

Palabras clave: predisposiciones para el aprendizaje; aprendizaje epistémico; aprender a aprender; cultura escolar

What [students] should learn first is not the subjects ordinarily taught, however important they may be; they should be given lessons of will, of attention, of discipline; before exercises in grammar, they need to be exercised in mental orthopaedics; in a word, they must learn how to learn.

Alfred Binet, 1909

Consider the following two lessons about conquistador Francisco Pizarro. They are, we might suppose, being delivered to two equivalent groups of 14-year-olds in the same school, perhaps even on the same day. In Lesson One, the students start by copying into their exercise books, as quickly and neatly as they can, a swathe of notes projected onto the whiteboard. When they have done that, they are set to read silently a prescribed few pages of their history textbook, and the lesson ends with a multiple choice questionnaire designed to assess their factual comprehension of the material they have just read.

In Lesson Two, the students arrive in their classroom to find that their teacher has written, rather cryptically, on the board: “History is the story written by the winners”, Napoleon Bonaparte’.

She begins by engaging them in a lively discussion about what this means, and whether it is true that historical documents and accounts are necessarily partial and biased, written by someone with a particular worldview composed of beliefs and assumptions and perhaps, consciously or unconsciously, with an axe to grind. They are then asked to work in pairs to study a few pages of the same text book (or Wikipedia), with the task of uncovering the worldview of the writer. What
unacknowledged assumptions is he or she making? What opinions are being passed off as if they were facts? What facts are being asserted without any evidence or justification? And so on. (In case you think this would be too hard for an average class, I can assure you it isn’t. I have seen so-called ‘low-ability’ classes perform this task with intelligence and gusto.) Finally, the students are asked to do a piece of creative writing about the capture of the Inca Emperor Atahualpa (which they have learned about in a previous lesson) — through the eyes of three protagonists: Pizarro, Atahualpa and the Dominican friar who acted as intermediary Vicente de Valverde.

The difference between these lessons is not merely that one is ‘good’ and the other ‘dull’. I’d like to draw out some more subtle differences that illustrate the theme of this paper, by posing three questions. First, what are the skills or habits of learning that are being required in each of the lessons? Second, how are the students being positioned as learners: i.e., how are they led, by the structure of the lesson, to construe their ‘job’, with respect to the subject matter? And third, what is the implicit conception of knowledge that is presumed by the different lesson designs? Obviously, the two lessons differ significantly — despite making use of the same pool of information — with respect to these three questions.

The first requires skills of rapid and accurate transcription, and comprehension through silent and solitary reading, for example. The second requires skills of critical literacy, the skeptical appraisal of knowledge claims, both large and small group discussion, and empathic perspective-taking. Regarding the second question: the first lesson positions the students as people whose job is limited to understanding and retaining information, whereas the second lesson invites students to become involved in the process of knowledge-critiquing as well as knowledge-retention. On the third question: the first lesson treats knowledge as something cut and dried, and accurately and impartially represented by the textbook. The second treats knowledge as partial and contentious, the fallible product of fallible human beings, always potentially open to question and improvement.

This contrast between these two lessons illustrates a general truth: every lesson, in every subject, requires the use of a particular set of learning habits or skills (and not others); frames the relationship of students to knowledge in a particular way (as supplicants or as critics, say); and even purveys particular assumptions about knowledge itself (timeless and true vs. contingent and contestable). No lesson can be neutral with respect to those three questions. As well as being taught chemistry or drama, students are always, necessarily, being taught how to engage with knowledge, what and how to question, and what their legitimate role is in the business of making, consuming and contesting knowledge.

Over 15 years of schooling, these messages — largely implicit, but none the less powerful for that — constitute a protracted and expensive apprenticeship in how to think and learn. Education is an epistemic apprenticeship — ‘epistemic’ in that it is to do, centrally, with the activities of thinking, learning and knowing. It inevitably involves the cultivation of an epistemic mentality, we might say: a set of ways of approaching complexity, uncertainty and difficulty. And it also helps to shape the development of a set of beliefs and attitudes about one’s own rights and
capabilities as a thinker, learner and knower — an *epistemic identity*. It is the nature of this apprenticeship that I want to explore in this paper. I want to dig into this legacy of schooling — the lasting epistemic residues that it leaves in students’ minds — and into the appropriateness of this apprenticeship as a preparation for intelligent engagement with the rigours and vicissitudes of 21st century life.

These psychological residues can and do vary widely. Depending on the way they are taught, young people’s minds are moulded in different ways, some of which are valuable beyond university and some of which are not. For example, some people come out at the end of their epistemic apprenticeship with the belief that ‘learning’ is remembering data and being right, and ‘thinking’ is creating plausible justifications, writing well-structured little essays and winning debates. Some of those who have picked up this view have learned to see themselves as good at (these kinds of) thinking and learning — and therefore ‘bright’ — and some have come to think of themselves as useless at them, and therefore ‘stupid’. Others, however, emerge with a different conception of learning, as being to do with curiosity and investigation. They may have developed a view of themselves as confident (or unconfident) critics, explorers and researchers.

Students frequently develop a patchwork of such epistemic identities and mentalities. Their epistemic apprenticeships may have stretched and strengthened some of the dispositions of a powerful, confident real-world learner, and not others. Some may have been guided to cultivate well-developed powers of empathy and imagination but little discipline and resilience; others the reverse. Some will have preserved and strengthened their love of questions; others may have come to think that asking questions signals lack of attention or intelligence. In addition, they may preserve a good sense of themselves as confident explorers in some subjects, art or music say, or in their out-of-school pursuits, but feel slow and clumsy in the kinds of learning required in mathematics or foreign languages. Alternatively, they may feel bright and confident in school learning, but ill-equipped to face challenges that have not been so carefully structured. Emily, a high-achieving 16-year-old girl, for example, said in a recent survey: ‘I guess I could call myself smart. I mean I can usually get good grades. Sometimes I worry though that I’m not equipped to achieve what I want, that I’m just a tape recorder repeating back what I’ve heard. I worry that once I’m out of school and people don’t keep handing me information with questions…I’ll be lost’.

Though schools do not determine these outcomes, they unarguably have a powerful effect upon the epistemic trajectories of those who pass through them. And teachers, whether they know it or not, are continually acting as epistemic coaches, steering their students one way or another. The epistemic apprenticeship is not an ‘optional extra’ that you can tack on to your teaching if you feel like it, and ignore if you don’t. It is an omnipresent shadow to everything that goes on in the classroom. Cultivating one version rather than another of an epistemic mentality and epistemic identity is something out of which no teacher can ever opt. The choice is only to be aware of this dimension, and to be interested in the different kinds of mental apprenticeship one might offer, or to be wilfully blind to the epistemic consequences of one’s teaching.
Are we training students like Emily to be good exam-passers, but to become easily flummoxed and anxious if they do not have a ready-made answer to a novel question? Are we ‘over-teaching’, so that students become too dependent on their teachers, and flounder when they go on to university, or out into the world of work, and have to meet substantial challenges without the benefit of that helpful network of support? There is good evidence that high- and low-achieving students alike are leaving school with a variable collection of certificates — but also with attitudes towards learning (in its broadest sense) that are dysfunctional in the modern world. If that is the case, then we are not educating but mis-educating the next generation. And we must urgently ask: what are the habits of mind that equip young people to thrive in a complex and turbulent world? And what leeway do teachers (in regular schools) have to cultivate those habits, rather than habits of passivity and dependency, at the same time as they are helping students to ‘play the examination game’?

**Positive learning dispositions**

Many countries around the world are grappling with these questions. They understand that the habits of mind that were welcomed and cultivated in the traditional classroom are more suited to developing the mindset of a 19th century clerk than a 21st century explorer. The virtues of accurate calculation and retention, docility, conscientiousness, neatness, punctuality and deference to authority are not without worth; they just don’t come at the top of most people’s list of life skills for the contemporary world. The ‘character strengths’, as they are sometimes called, that recur again and again in these national desiderata fall into three groups: those that are to do with self-regulation such as delayed gratification; those of the ‘good citizen’ such as honesty and civic engagement; and those epistemic strengths on which we are focusing here. Singapore, for example, having been for many years a much admired international leader in the production of young clerks, is now committed to developing an educational system which will produce young people who:

- have the moral courage to stand up for what is right; pursue a healthy lifestyle and have an appreciation of aesthetics; are proud to be Singaporeans; are resilient in the face of difficulty, innovative and enterprising, purposeful in the pursuit of excellence; and able to collaborate across cultures, think critically and communicate persuasively (Singapore, 2009).

Appendix 1 shows a more detailed specification of the component epistemic strengths of the powerful learner which we have developed in our own work on Building Learning Power (see Claxton, Chambers, Powell, & Lucas, 2011; Mortell, 2012). These ‘powerful learning dispositions’ are, as you will see, grouped into four clusters. There are habits of mind that support intelligent engagement with learning challenges (which we call generically resilience). There are habits, tools and strategies that enable flexible and skilful approaches to learning (resourcefulness). There are attitudes to do with maximizing the social
sophistication and benefits of learning (relating). And there are a group of habits that enable learners to be self-aware, self-evaluative and self-managing in their learning (reflectiveness). Similar specifications have been derived by Costa and Kallick (2000), Perkins and Ritchhart (2004) and several other researchers, as well as by individual (e.g. Finland) and groups (e.g. the OECD) of national education systems. All these specifications point to the feasibility of teaching in a way that systematically builds students’ confidence, capability and appetite for engaging in challenging learning. And they all share a deep belief that cultivating such qualities of mind should be a central purpose of 21st century education.

My point here is not to argue for one or other of these detailed prescriptions, though that is certainly an active area of debate. The dispositions in Appendix 1 will merely serve as a basis for exploring our second question: what leeway do teachers have to vary their teaching so as to hit the dual targets of good levels of school attainment and a demonstrably good preparation for a 21st century learning life? Without a clear idea of what habits of mind one is aiming to achieve, it is impossible to think in any detail about how one might go about achieving them, or how one would know if one had been successful.

Building learning power

I want now to illustrate some of the ways in which the community of practice of a school can adjust the epistemic milieu so that students’ experience of all aspects of their schooling impacts on students’ development as learners. I want to suggest ways in which the culture of teaching and learning might be used more effectively and systematically to develop the habits of mind that support powerful and confident real-world learning. Figure 1 shows the structure of the ensuing discussion. Each ring represents an aspect of the school culture that can impinge on the development of students’ attitudes and dispositions towards learning. They are some of the elements that make up the epistemic apprenticeship. Once they are clearly identified, they become open to alteration. Focused and targeted culture change in a school becomes possible.

There are a number of approaches to school improvement and teacher development that explicitly aim to improve the quality of the epistemic apprenticeship that is on offer to students. They include John Hattie’s Visible Learning (Hattie, 2009, 2012), David Perkins and Ron Ritchhart’s Visible Thinking (Perkins, 2009; Ritchhart, Church, & Morrison, 2011), Art Costa and Bena Kallick’s Habits of Mind (Costa & Kallick, 2000), Susan Hart and colleagues’ Learning without Limits (Hart, Dixon, Drummond, & McIntyre, 2004) and our own Building Learning Power (BLP: Claxton, 2002; Claxton et al., 2011). We have recently dubbed these and similar approaches ‘expansive education’, focusing as they all do on the explicit and systematic expansion of epistemic attributes and qualities of mind (Lucas, Claxton, & Spencer, 2013). I will use our own work on BLP to illustrate how the epistemic apprenticeship can be adjusted to produce a closer match between the habits of mind that are exercised in school and those that are of broad value in the wider world of learning.
Building Learning Power (BLP) is a practical knowledge base derived from the work of a large, loose network of schools and teachers that are keen to provide a more expansive education. BLP grew out of research for my book Wise Up: The Challenge of Lifelong Learning (Claxton, 1999) which reviewed the international research rationale for practical approaches to ‘learning to learn’ in schools, and has now had a significant impact on, at a conservative estimate, around 5000 UK schools (nursery, primary, secondary and special), as well as universities and colleges, and the classrooms of say 50,000 teachers. In addition, there are, to our knowledge, schools and colleges experimenting with the BLP approach in Ireland, the Netherlands, Switzerland, Poland, Dubai, Singapore, Indonesia, China, New Zealand, Australia, Brazil, Argentina, Chile and the USA.

BLP offers schools a number of tools to help change their processes and pedagogies. They include:

- Vocabularies for thinking and talking about learning. These include:
  - Ways to describe the character traits that underpin powerful learning (see Appendix 1)
  - A ‘process language’ for talking about the ups and downs of learning as it happens in the classroom and in life
  - Forms of language that invite imaginative or critical engagement by students, as well as efforts to comprehend and retain information
- A large number of seeds and ideas for making small changes to teaching methods and the ethos of the classroom. These include:
○ How to design ‘split-screen lessons’, which simultaneously aim to develop conceptual understanding and some specific aspect of students’ ‘learning power’
○ A variety of ‘learning routines’ that teachers can use to encourage students to draw on a richer range of learning habits (some adapted from Ritchhart et al., 2011)
○ Visual displays and artefacts that act as reminders and supports for both teachers and students
  ● A framework for leaders of professional development in a school to support the necessary kinds of habit change in colleagues
  ● A method — the ‘learning review’ — for clarifying and reviewing the nature of the epistemic apprenticeship that already exists in a school
  ● Suggestions for strengthening a culture of mutual support and experimentation amongst staff (a ‘community of enquiry’)
  ● A route-map — the ‘learning quality framework’ — for school leaders to help them plan and prioritize the various layers of culture change they might be trying to bring about
  ● A fully-tested self-report instrument — the Learning Power Questionnaire (LPQ) — for capturing the development of students’ learning capacities (Mortell, 2012)
  ● Networks of like-minded schools and teachers (such as the Expansive Education Network) that can share ideas and offer mutual support and professional development

It will be clear from this list of resources that we see the epistemic culture of a school as indeed multifaceted. Epistemic messages are conveyed as much by the layout of furniture, or the kinds of accomplishments and trophies are that are displayed (and not displayed) in the school foyer, as they are through explicit instruction. Thus, attempts to change or develop the nature of the epistemic apprenticeship require attention to all these embodied assumptions and values, as well as to the school’s more explicit practices and rhetorical commitments.

Conclusion
In this paper I have tried to make a case for the possibility, as well as the desirability, of paying greater attention to the nature of the epistemic apprenticeship that schools provide. I have argued that there is a fast-growing global tendency to cast the fundamental purposes of education in terms of the cultivation of useful, transferable, culturally appropriate ‘character strengths’ or ‘habits of mind’; and that this leads most productively to a refocusing of the methodology of normal lessons. Concern with expansive education does not — at least, should not — lead to a neglect of difficult subject matter or challenging projects, but to the clear recognition that the main reason for grappling with them is to build the skills and attitudes of learning. In the 21st century, young people, I believe, need to develop an appetite for adventure — both physical and cognitive — and to
discovery the deep pride and satisfaction that comes from committing your intelligence wholeheartedly to tackling substantial and worthwhile challenges.

Whether school challenges its students to produce an elegant essay, a functioning electric circuit, a well-struck free kick or a mathematical proof, is less important than the growth in epistemic confidence to which their pursuit gives rise. Practical and vocational education, scientific and mathematical education, arts and humanities education are all needed, and all need to be esteemed fully, because youngsters have different interests and talents. What matters is to figure out what will entice students to commit the levels of energy and intelligence that will be repaid in epistemic growth.

If Lauren Resnick is right, that intelligence is properly seen as ‘the sum total of one’s habits of mind’ (Resnick, 1999); if David Perkins is right, that much of what looks like evidence for intelligence (or the lack of it) is actually a matter of learned dispositions and ‘sensitivity [or insensitivity] to occasion’ (Perkins & Ritchhart, 2004); if Carol Dweck is right, that our apparent intelligence is powerfully moderated by acquired beliefs about intelligence (Dweck, 2000); if Martin Seligman and Angela Duckworth are right, that (acquired) self-discipline accounts much better for school performance than (fixed) IQ (Duckworth & Seligman, 2005): if all this is good psychology, then the idea of helping young people to learn how to be smarter — especially in the way they respond to difficulty and uncertainty — gains a great deal of credibility and practicability. And if Vygotsky (1978), Tomasello (1999) and many others are right, that our mental and emotional habits, our beliefs and values, are picked up largely implicitly, simply through the process of trying to fit in with the company we keep, then the habits of teachers and the cultures of schools emerge as being major contributors to the development of young minds: perhaps more powerful even than tuition in algebra and English.

Notes
1. An expanded version of this paper is published as the 32nd Vernon Wall Lecture of the Education Section of the British Psychological Society. This is available to download at http://www.winchester.ac.uk/aboutus/lifelonglearning/CentreforRealWorldLearning/Pages/Publications.aspx. I would like to thank all those who have collaborated with me on the work described in these two papers, especially my colleagues and co-authors Maryl Chambers, Graham Powell and Bill Lucas; TLO consultants Leanne Day, Sue Herdman and Steve Watson; Judith Mortell, who developed and trialled the formal Learning Power Questionnaires for her PhD; and the principals and teachers of all the schools that took part in the research evaluation project that gave rise to our book The Learning Powered School (Claxton et al., 2011).
3. Further details of the BLP seeds, frameworks, tools and languages, as well as a range of resources and publications, can be found at www.buildinglearningpower.co.uk. Many aspects are described more fully in Claxton (2002) and Claxton et al. (2011).
Appendix 1

These descriptions of the powerful learner can be used to underwrite a variety of tools and prompts:

a. a self-report questionnaire
b. an observation schedule for use by teachers, students and researchers
c. a basis for identifying linguistic prompts and nudges that can be used by teachers and coaches to develop each disposition

The 16 characteristics below are based on both research in the learning sciences, and teachers' judgements about the 'habits of mind'. Taken together, they seem to describe the mindset of a 'powerful learner' in a way that many teachers find both plausible, fruitful and comprehensive.

RESILIENCE — emotional strength

(1) Inquisitive: has a questioning and positive attitude to learning
(2) Persistent: stays determined, positive and patient in the face of difficulty or mistakes
(3) Adventurous: willing to risk and 'have a go'; up for a new challenge
(4) Focused: observant, concentrates well, ignores distractions, becomes engrossed

RESOURCEFULNESS — cognitive capability

(5) Imaginative: comes up with creative ideas and possibilities; visualizes
(6) Connecting: looks for links and relationships; likes to 'hook things up'; uses metaphor
(7) Crafting: keen to work on improving products; practising and developing skills
(8) Capitalizing: makes good use of resources, tools and materials
REFLECTION — strategic awareness

(9) Methodical: well-organized; thinks things through carefully
(10) Self-evaluative: makes honest and accurate judgements about ‘how it's going’
(11) Self-aware: knows their own strengths, styles and interests as a learner
(12) Transferring: looks for other applications and lessons for the future

RELATING — social sophistication

(13) Collaborative: a good team-player; helps groups to work well together
(14) Open-minded: asks for, listens to and makes good use of information, feedback and advice
(15) Independent: able to ‘stand their ground’; shows initiative
(16) Empathic: understands others; offers helpful feedback and suggestions; receptive and imitative

Apéndice 1
Estas descripciones del aprendiz poderoso pueden emplearse para apoyar el uso de diversas herramientas y pautas:

a. un cuestionario de autoinforme
b. un calendario de observación para profesores, estudiantes e investigadores
c. una base para identificar pautas y ánimos lingüísticos que pueden emplear los profesores y entrenadores para desarrollar cada una de las predisposiciones

Las 16 características que se muestran a continuación están basadas tanto en investigaciones de las ciencias del aprendizaje como en los juicios de los profesores sobre los ‘hábitos mentales’. Tomadas conjuntamente parecen describir la mentalidad de un ‘aprendiz poderoso’ de una forma que muchos profesores encuentran plausible, fructífera y comprensiva.

RESILIENCIA — fortaleza emocional

(1) Inquisitivo: tiene una actitud hacia al aprendizaje positiva e indagadora
(2) Persistente: permanece determinado, positivo y paciente ante dificultades o errores
(3) Aventurero: dispuesto a arriesgar y ‘darle una oportunidad'; abierto a nuevos desafíos
(4) Concentrado: observador, se concentra bien, ignora las distracciones, se abstae

INICIATIVA — capacidad cognitiva

(5) Imaginativo: tiene ideas creativas y ve posibilidades; visualiza
(6) Conectivo: busca vínculos y relaciones; le gusta ‘encajar cosas’; usa metáforas
(7) Diestro: deseoso de trabajar por mejorar los productos; practica y desarrolla habilidades
(8) Provechoso: da buen uso a los recursos, herramientas y materiales

REFLEXIVIDAD — conciencia estratégica

(9) Metódico: bien organizado; piensa las cosas detallada y cuidadosamente
(10) Autoevaluativo: hace juicios honestos y precisos sobre 'cómo está marchando la cosa'
(11) Con conciencia de sí mismo: conoce sus puntos fuertes, sus estilos e intereses como aprendiz
(12) Transfiere: busca otras aplicaciones y lecciones para el futuro

VERSE REFLEJADO — sofisticación social

(13) Colaborativo: buen jugador de equipo; ayuda a que los grupos funcionen bien
(14) Abierto de mente: pregunta, escucha y hace buen uso de la información, la retroalimentación y los consejos
(15) Independiente: capaz de ‘mantenerse firme’; muestra iniciativa
(16) Empático: comprende a los demás; ofrece consejos y sugerencias útiles; receptivo e imitativo

Figura 1. Predisposiciones poderosas para el aprendizaje.